



DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
NAVAL AIR SYSTEMS COMMAND HEADQUARTERS
WASHINGTON, DC 20361-0001

IN REPLY REFER TO

NAVAIRINST 13800.11C
AIR-551
14 Apr 92

NAVAIR INSTRUCTION 13800.11C

From: Commander, Naval Air Systems Command

Subj: PROCEDURES AND RESPONSIBILITIES FOR CERTIFICATION AND
VERIFICATION OF THE PRECISION APPROACH AND LANDING SYSTEM

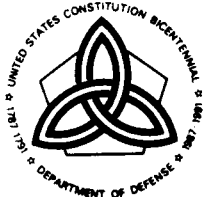
Ref: (a) NAVAIRINST 3120.1B, Lead Systems Command Procedures and
Responsibilities for Certification of Aviation Facili-
ties in Naval Ships Operating Aircraft (NOTAL)
(b) NAVMATINST 5400.20, Management of the Automatic Carrier
Landing System (ACLS) and National Microwave Landing
System (NMLS) (NOTAL)
(c) AN/SPN-42A Certification Procedures Categories I and
IIA, NESEA No. 2120-136 of Aug 89
(d) AN/SPN-42-T3/T4 Certification Procedures Categories I
and IIA, NESEA No. 2120-128 of Jul 89 (NOTAL)
(e) AN/SPN-41 Category I Certification Procedures, NESEA No.
2120-106C of 1 Nov 87 (NOTAL)
(f) AN/SPN-46(V) Certification Procedures, Categories I and
IIA, NESEA No. 2120-134 of Oct 89 (NOTAL)
(g) Certification Procedures for Aircraft Approach Control
Transmitting Set AN/TRN-28, NESEA No. 022-121A CH-1 of
May 87 (NOTAL)

Encl: (1) Precision Approach and Landing System Qualified Aircraft
(2) Precision Approach and Landing System Certification and
Verification Events
(3) Precision Approach and Landing System Certification and
Verification Reports Distribution List

1. Purpose. To

a. Establish procedures and assign responsibilities within the
Naval Air Systems Command Headquarters (NAVAIRHQ) for certification
and verification of the Precision Approach and Landing System
(PALS) formerly the Automatic Carrier Landing System (ACLS).

b. Publish PALS certification/verification responsibilities
for the Naval Sea Systems Command Headquarters (NAVSEASYSOMHQ),
Washington, DC, the Naval Air Warfare Center Aircraft Division
(NAVAIRWARCENACDIV), Patuxent River MD, and the Naval Electronic
Systems Engineering Activity (NAVELEXACT), St. Inigoes, MD.



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c. Publish responsibilities for NAVAIRWARCENACDIV Patuxent River and NAVELEXACT (St. Inigoes) certification/verifications teams as established by reference (a).

2. Cancellation. This instruction supersedes NAVAIR Instruction 13800.11B of 3 January 1989. Since this is a major revision, changes have not been indicated.

3. Background. With the disestablishment of the Naval Material Command on 6 May 1985, the designation of the Commander, Naval Air Systems Command as the primary point of contact for the PALS within the former naval material establishment remained as originally assigned by reference (b). NAVAIRHQ continues to provide lead management and coordination responsibilities for the PALS, including management and coordination of PALS certifications and verifications. Procedures developed by NAVAIRHQ and delineated in this instruction will be adhered to during certification and verification of the PALS.

4. Definitions

a. PALS. A system for all-weather recovery of carrier-based aircraft consisting of the following components:

(1) Landing Control Central (AN/SPN-42 series) or ACLS (AN/SPN-46(V) series).

(2) Link 4A data link (AN/SSW-1 series) and Carrier Air Traffic Control Center Direct Altitude Identify Readout (CATCC DAIR) aboard ship.

(3) Independent Landing Monitor (ILM) AN/SPN-41 (shipboard) or AN/TRN-28 (shore-based), and AN/ARA-63 or AN/ARN-138 (airborne).

(4) PALS qualified aircraft.

b. Ship's PALS Interface Equipment. The following is the ship's equipment used in providing environmental and stabilization inputs, communications to PALS, and guidance backup:

(1) Ship's gyros (both SINS and Mark 19 gyro systems).

(2) Ship's anemometer system.

(3) Ultra high frequency radios.

(4) Landing signal officers heads-up display.

(5) Tactical Air Navigation system (TACAN).

(6) CATCC, DAIR aboard ship.

(7) Fresnel Lens Optical Landing System (FLOLS). PALS is used in conjunction with the FLOLS during the recovery of aircraft. When an aircraft transitions from instrument to visual conditions, the alignment of the PALS and FLOLS must agree.

c. AN/SPN-42/46(V) Approach Modes

(1) Mode I Approach. A precision approach in which an aircraft is controlled automatically by the AN/SPN-42 or AN/SPN-46 (V) to touchdown. Approach weather minimums, specified and controlled by the certifying activity, are 200-foot ceiling and 1/2-nautical mile visibility (200-1/2) except that in single piloted aircraft, with side-by-side seating occupied by the pilot-in-command and an assisting naval flight officer, the aircraft may be cleared to minimums of 100-1/4 when using the ILM or a separate Precision Approach Radar.

(2) Mode IA Approach. A precision approach in which an aircraft is controlled automatically by the AN/SPN-42 or AN/SPN-46 (V) to 200 feet above and 1/2-nautical mile from the touchdown point at which time the pilot takes control of the aircraft. Approach weather minimums are 200-1/2.

(3) Mode II Approach. A precision approach in which precise and continuous position error information from the AN/SPN-42 or AN/SPN-46(V) is displayed in an aircraft enabling a manually controlled precision approach to appropriate minimums (similar to an Instrument Landing System (ILS) approach). Approach weather minimums are 200-1/2.

(4) Mode II Training Approach. A Mode II training approach in which the pilot flies a Mode II approach while being provided with Mode III approach information. Approach weather minimums are 200-1/2.

(5) Mode III Approach. A precision approach in which a pilot is supplied position and guidance information from the AN/SPN-42 or AN/SPN-46(V) by voice from a shipboard/surface controller, enabling a manually controlled precision approach to appropriate minimums (similar to a ground controlled approach). Approach weather minimums are 200-1/2.

d. Instrument Carrier Landing System (ICLS) Approach. A precision approach in which precise and continuous position information is displayed in an aircraft enabling a manually controlled precision approach to appropriate minimums (similar to an ILS approach). Approach weather minimums are 300-foot ceiling and 3/4-nautical mile visibility (300-3/4). Shore-based operations are restricted to Visual Flight Rules unless a separate monitor and TACAN are utilized.

e. PALS Qualified Aircraft. A PALS configured aircraft model that has been flight tested and found for PALS Mode I, IA, II, or ICLS approaches and the qualification issued in that aircraft's Naval Air Training and Operating Procedures Standardization Manual. Enclosure (1) is a listing of PALS qualified aircraft.

f. Instrumented PALS Aircraft. PALS qualified aircraft with special onboard instrumentation recording and telemetry systems for monitoring aircraft flight and PALS parameters.

g. Certification Tests. A complete check of the PALS for all of the designated PALS modes of operation at a shipboard or shore-based installation which is accomplished by a joint NAVAIRWARCENACDIV Patuxent River and NAVELEXACT team. This team follows the procedures of references (c) and (d) for the AN/SPN-42A or references (d) and (e) for the AN/SPN-46(V) (shipboard), the procedures of references (d) and (f) for the AN/SPN-42-T3/T4, the procedures of references (d) and (g) for the AN/SPN-41, and procedures of reference (d) for the AN/TRN-28.

h. PALS Installation Certification. Certification authorizes the use of designated PALS modes of operation with specified PALS qualified aircraft. A certification is issued, as described in paragraph 7 of this instruction. Appropriate restrictions such as ceiling and visibility, maximum and minimum wind over the deck (WOD) conditions, specified glide slope, deck motion limitations, and aircraft model and series will be included in the certification. When an installation is certified for a particular mode of operation, all modes with a numerically greater designation are included (e.g., a Mode I certification includes Mode IA, II, and III certification). Note, however, that PALS monitor and ICLS certifications are issued separately. No aircraft will make approaches in any mode until that shipboard or shore-based PALS facility has been certified or verified, as outlined in this instruction. An installation will lose its previous certification at the start of the Category I certification tests. The certification pertaining to an effected mode of operation will be suspended at the time a verification is required until the verification is successfully completed. The certification pertaining to additional modes of operation may be suspended if extensive problems are found during the verification.

i. Verification Tests. Functional or alignment checks for all of the designated PALS modes of operation at a shipboard or shore-based PALS installation are accomplished by a joint NAVAIRWARCENACDIV Patuxent River and NAVELEXACT team. This team follows the procedures of references (c) and (d) for the AN/SPN-42A or references (d) and (e) for the AN/SPN-46(V) (shipboard), the procedures of references (d) and (f) for the AN/SPN-42-T3/T4,

the procedures of references (d) and (g) for the AN/SPN-41, and procedures of reference (d) for the AN/TRN-28.

j. PALS Installation Verification. The verification authorizes continued use of the designated PALS modes of operation with specified PALS qualified aircraft within the limits of the most recent Mode I certification clearance. A verification is issued as described in paragraph 7 of this instruction.

k. PALS Deficiency Classification. The PALS deficiency classification is for those deficiencies which degrade PALS performance from that of a nominal PALS. Most PALS deficiencies should be found and corrected prior to completion of the certification and verification checks. Deficiencies which would require design changes should not be included under the PALS deficiency classification.

(1) Part I. A Part I indicates a deficiency, the correction of which is necessary because it adversely affects:

(a) Ability of the PALS to perform any designated PALS mode of operation.

(b) Safety of the crew.

(c) Integrity of an essential subsystem. In this regard, a real likelihood of injury or damage must exist. Remote possibilities or unlikely sequences of events will not be used as a basis for safety items. A PALS Part I deficiency either prevents use of the affected mode or restricts its use to less than the normal operational envelope. The recommended timing of the deficiency correction should be based on its severity (i.e., prior to fleet use, prior to fleet use of the affected mode, or prior to fleet use of the full operational envelope). References (c), (e), and (f) give examples of Part I deficiencies.

(2) Part II. A Part II indicates a deficiency of less severity than a Part I, which does not substantially reduce the ability of the PALS to accomplish its primary mission, but the correction of which will result in a significant improvement of the effectiveness, reliability, maintainability, or safety of the PALS. A Part II deficiency is a deficiency which either degrades the capabilities of the aircraft or equipment, or requires significant operator compensation to achieve the desired level of performance. However, the aircraft or equipment being tested is still capable of accomplishing its primary mission with a satisfactory degree of safety and effectiveness. PALS Part II deficiencies will be corrected prior to ship deployment.

(3) Part III. A Part III indicates a minor deficiency which is impractical or uneconomical to correct at this time, but will be corrected prior to the next certification or verification.

5. Determination of Certification or Verification Requirement. References (a) and (c) provide guidance for determining when a certification or a verification is required. The following sections provide additional guidance. When ambiguities result, an engineering determination will be made jointly by the NAVAIRWARCENACDIV Patuxent River and the NAVELEXACT to determine the scope and timing of required tests.

a. Certification. A certification is required

(1) after initial PALS installation;

(2) after changes or modifications which affect aircraft control, such as

(a) major relocation of PALS radar pedestals;

(b) a significant change in the average operating conditions from those which had previously been certified (more than 0.2 degree ship's pitch trim or more than 5 knots WOD); or

(c) a major structural change to the flight deck or island structure which may change the burble or location of the touchdown point;

(3) for certification of a qualified aircraft model and series not included in previous certifications;

(4) when flight verification tests confirm unsafe or improper aircraft control not related to improper function of shipboard/shorebased hardware or electrical systems;

(5) for a major control program modification to improve aircraft control during the last mile of the approach;

(6) for certification of a basic glide slope setting not previously certified; and

(7) after installation has been downgraded from a Mode I to a Mode IA and reasons for downgrade are not related to improper function of shipboard/shorebased hardware and electrical systems.

b. Verification. A verification is required

(1) when major system overhaul, repair, modification, update to PALS related systems or any system which could degrade the PALS system performance, is made;

(2) when modifications or updates are made to PALS or CATCC DAIR programs affecting PALS system performance;

(3) when repair or replacement of certain components which affect basic system alignment or operation, as listed in reference (c), occurs. An engineering determination will be made jointly in each case by NAVAIRWARCENACDIV Patuxent River and NAVELEXACT to determine the scope of effort required;

(4) when surface or airborne system performance trends raise doubt as to the safe and proper operation of the PALS equipment;

(5) when improper function of shipboard/shorebased hardware and electrical systems affecting alignment or aircraft control are suspected;

(6) generally, a verification is recommended every 18 months and is required no later than 24 months or prior to a deployment when that deployment will begin more than 18 months after the last certification or verification. For shore stations, a verification is recommended every 24 months and is required no later than every 30 months; and

(7) at other times when so specified or requested by the type commander (TYCOM), NAVAIRHQ, or NAVSEASYSOMHQ.

c. Certification and Verification Activities. The primary certification and verification activity will be NAVAIRHQ assisted by NAVSEASYSOMHQ. Request for certification or verification will be made by the TYCOM to NAVAIRWARCENACDIV Patuxent River (SA-70) with copies to the Office of the Chief of Naval Operations (OP-554G), NAVAIRHQ Ship and Shore Installations Division (AIR-551), Air Traffic Control and Landing Systems Program Office (PMA213), Naval Electronics Systems Engineering Activity (NESEA-2120), and NAVSEASYSOMHQ (PMS312). Requests should be submitted by letter or message by 15 April prior to the start of the fiscal year in which the certification or verification will occur. Enclosure (2) outlines the sequence of the events which must be followed to accomplish a PALS certification or verification.

6. Procedures

a. Certification Test. Three categories of certification tests are established:

(1) Category I. Diagnostic tests to ensure the correct installation, interconnection, interface, alignment, and performance of ship or shore station PALS components.

(2) Category II. Pierside or shore station flight tests.

(a) Category IIA. Helicopter or fixed-wing aircraft flight checks to determine AN/SPN-42 or AN/SPN-46(V) glidepath and azimuth accuracy; AN/SPN-42 or AN/SPN-46(V), AN/SPN-41 or AN/TRN-28, and FLOLS glidepath alignment; and Mode III performance, within limits, for Mode III certification.

(b) Category IIB. Fixed-wing PALS Mode I qualified aircraft (instrumented when feasible) flight checks to ensure satisfactory automatic control of an aircraft in static (no ship motion) condition.

(3) Category III. At sea or shore station tests using PALS Mode I qualified aircraft to ensure satisfactory automatic control of aircraft in the operational environment. PALS qualified aircraft used in certification will normally include at least one instrumented aircraft. Measurement of Mode I aircraft touchdown parameters will normally be required. A sufficient number of passes will be required to establish statistical confidence in the data.

b. Verification Tests. Data will be obtained to determine satisfactory PALS derived aircraft position data alignment and noise characteristics. Under normal conditions, tests with one aircraft type will be sufficient to verify all aircraft types certified for the PALS ship or shore installation, and measurement of Mode I aircraft touchdown parameters normally will not be required.

c. Documentation

(1) Requirements message for the certification and verification efforts specifying support requirements, carrier deck time requirements, procedures, and schedule.

(2) Certification or verification situation report.

(3) Interim and final certification or verification reports. A standard distribution list for reports is shown in enclosure (3). The final certification or verification technical report will be submitted as directed by the applicable AIRTASK.

7. Clearance Authority

a. NAVAIRHQ (AIR-551) is designated the issuing authority for PALS clearances. Authority to issue, by message, specific

mode clearances is delegated to certification or verification teams as follows:

(1) Mode III. Issued by a senior NAVELEXACT team member by message upon successful completion of Category I (including the at sea verification of the stabilization system) and IIA tests. Category IIB and III tests can proceed only after completion of Category I and IIA tests.

(2) Mode II, PALS ILM, and ICLS. Issued by NAVAIRWARCENACDIV Patuxent River certification or verification test coordinator after satisfactory system performance during initial phases of Category III tests.

(3) Mode IA. Issued by a NAVAIRWARCENACDIV Patuxent River certification or verification test coordinator after completion of the system optimization phase of Category III tests.

(4) Interim Mode I. Issued by a NAVAIRWARCENACDIV Patuxent River certification or verification test coordinator at completion of Category III tests based on preliminary data analysis provided that no Mode I related Part I deficiencies are outstanding.

(5) Final PALS. Issued by NAVAIRWARCENACDIV Patuxent River following detailed data analysis. The final PALS certification or verification clearance will be distributed as shown in enclosure (3). NAVAIRWARCENACDIV Patuxent River certification or verification reports will use a format appropriate for the test phase and system status.

b. When testing reveals system deficiencies, specific certification clearance will be withheld until corrective action has been completed. NAVAIRHQ, NAVSEASYSOMHQ and the ship or shore station concerned will be informed of test results by the test activity (NAVAIRWARCENACDIV Patuxent River and NAVELEXACT). After the certification or verification is completed, a final status report will be transmitted to the TYCOM and the operational commanders.

8. Responsibilities

a. NAVAIRHQ

(1) AIR-551 will

(a) approve NAVAIRWARCENACDIV Patuxent River and NAVELEXACT certification and verification schedules;

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(b) budget certification and verification efforts with NAVAIRWARCENACDIV Patuxent River and NAVELEXACT inputs;

(c) provide funding for NAVAIRWARCENACDIV Patuxent River and NAVELEXACT certification and verification efforts; and

(d) issue status of compatibility and capability of various PALS qualified aircraft models and series with specific PALS installations.

(2) PMA213 will maintain PALS configuration control.

b. NAVSEASYSOMHQ (PMS-312) will

(1) assist NAVAIRHQ, as required, during certification and verification of PALS ship subsystems;

(2) monitor the status of all ship alterations and field changes, and advise NAVAIRHQ (AIR-551) of conditions which would result in PALS performance degradation;

(3) retain budgetary and funding responsibility for certification and verification of new construction and service life extension program aircraft carriers.

c. NAVAIRWARCENACDIV Patuxent River (SA-70) will

(1) schedule and coordinate the PALS Category IIB and III certification activities with inputs from Commander, Naval Air Force, U.S. Atlantic Fleet (COMNAVAIRLANT), Commander, Naval Air Force, U.S. Pacific Fleet (COMNAVAIRPAC), NAVSEASYSOMHQ, and NAVELEXACT. Issue a requirements message for the certification and verification effort to all concerned specifying support requirements, carrier deck time requirements, test team personnel, procedures, and schedule;

(2) provide budget inputs to NAVAIRHQ (AIR-551) for the flight portion of the PALS certification and verification activities;

(3) provide a qualified certification or verification test coordinator to perform Category IIB and III tests. The test coordinator is the certification or verification team leader for Category IIB and III tests. This individual is the interface among all members of the certification or verification team (NAVAIRWARCENACDIV Patuxent River and NAVELEXACT) and the ship or shore station being certified or verified. All team members will keep the test coordinator informed of test progress in their respective areas;

(4) conduct PALS Category IIB and Category III tests. NAVAIRHQ, NAVSEASYSOMHQ, and the ship or shore station concerned will be kept informed of test results. Assist NAVELEXACT, as required, during Category IIA tests;

(5) perform detailed data analysis and prepare message or quick response reports to NAVAIRHQ. Prepare final PALS report (with final Mode I clearance) and distribute as shown in enclosure (3);

(6) issue ICLS, PALS ILM, Mode II, Mode IA, interim Mode I, and final PALS (Mode I) clearances. When testing reveals system deficiencies, the affected certification clearance will be withheld until corrective action has been completed;

(7) advise NAVAIRHQ (AIR-551 and PMA213) on PALS configuration control matters;

(8) advise NAVAIRHQ (AIR-551) of status of compatibility and capability of various PALS qualified aircraft models and series with specific PALS installations;

(9) update certification procedures of reference (d) to this instruction, as necessary, and issue additional implementation instructions and technical publications, as required, for PALS certification and verification (with NAVAIRHQ approval); and

(10) provide guidance relative to certification and verification criteria.

d. NAVELEXACT (NESEA-2120) will

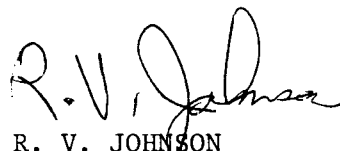
(1) schedule and coordinate the PALS Category I and IIA certification activities with inputs from COMNAVAIRLANT, COMNAVAIRPAC, NAVSEASYSOMHQ, and NAVAIRWARCENACDIV Patuxent River. Issue requirements for the certification and verification effort to all concerned, specifying support requirements, test team personnel, procedures, and schedule;

(2) provide budget inputs to NAVAIRHQ (AIR-551 and PMA213) for the PALS certification and verification activities related to the PALS shipboard/ground equipment;

(3) conduct PALS Category I and Category IIA tests. The senior NAVELEXACT team member will act as test coordinator during Category I and Category IIA tests. NAVAIRHQ, NAVSEASYSOMHQ, and the ship or shore station concerned will be kept informed of test results. Advise NAVAIRHQ and NAVAIRWARCENACDIV Patuxent River when Categories I and IIA tests are complete and system status permits commencement of Category IIB and III tests;

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- (4) issue Mode III clearance via message;
 - (5) assist NAVAIRWARCENACDIV Patuxent River, as required, during categories IIB and III tests. Keep the test coordinator informed of test progress during Categories IIB and III tests;
 - (6) prepare a final letter report of PALS system status and/or test results after individual certification/verification testing is completed, and distribute as shown in enclosure (3);
 - (7) advise NAVAIRHQ (AIR-551 and PMA213) on PALS configuration control matters;
 - (8) update, and maintain as necessary, PALS certification and verification procedures established in references (c) and (e) through (g) to this instruction. Issue additional implementation instructions and technical publications, as required, for PALS certification and verification; and
 - (9) provide guidance relative to certification and verification criteria.
9. Waivers. Specific waivers to the requirements of this instruction must be requested from NAVAIRHQ (AIR-551) by the TYCOMs.
10. Action. Addressees will take required action to carry out the responsibilities assigned in this instruction.
11. Reports. The reporting requirements contained in paragraphs 6, 7, and 8 of this instruction are exempt from reports control by SECNAV Instruction 5214.2B.



R. V. JOHNSON
Deputy Commander

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Distribution: FKA1A (established quantity); others 2 copies each
SNDL: 24A; FKA1A (PMA213, AIR-551 (5 copies); FKA1G (PMS312);
FKQ3A (St. Inigoes); FKR6; FKR6A (Patuxent River)

Copy to: (2 copies each unless otherwise indicated) SNDL: C21
(1 copy); FKA1A (AIR-00D A/L (1 copy), AIR-71232 (10 copies), AIR
71233B (40 copies); FKM27 (NPPSO-NDW C/L)

Stocked: Commanding Officer, Navy Aviation Supply Office,
Physical Distribution Division, Code 103, 5801 Tabor Avenue,
Philadelphia, PA 19120-5099

- (3) TA-7C.
- (4) C-2A with AFC-86.
- (5) KC-130R in normal configuration.
- (6) RF-4B with AFC-470 Part II.
- (7) F-14A/B/D.
- (8) F/A-18A/B/C/D.
- (9) S-3A (all).
- (10) T/EA-3B with AFC-520 and 521.
- (11) E-2C.

Encl (1)

PRECISION APPROACH AND LANDING SYSTEM QUALIFIED AIRCRAFT

1. Aircraft qualified for AN/SPN-42, AN/46(V), and AN/SPN-41/TRN-28 ILM and ICLS:

a. Mode I

(1) EA-6B (Interim Capability (ICAP) or ICAP2) with CP-1404/ASN-54(V) Automatic Power Control System (APCS) (AVC-2268, AFC-369, AFC-437, and AFC-449) ashore only.

(2) KA-6D with AFC-136, AFC-161, AFC-230, AFC-240, AFC-462, CP-1133/ASN-54(V) APCS (AVC-1376), ID-1719A/A VGI with electrical erection, and AS-3017/APN Horizontally Polarized Radar Beacon Antenna (AFC-431).

(3) A-6E (NSN-159895 and subsequent)/A-6E Mod (Numbers M121 and subsequent) with CP-1133/ASN-54(V) APCS (AVC-1376), ID-1719A/A VGI with electrical erection, and AS-3017/APN Horizontally Polarized Radar Beacon Antenna (AFC-431).

(4) A-7E with CP-990A/ASN-54 APCS, AFC-181 with AVC-1122 and AVC-1430, and AFC-213 Parts I and II with AVC-1210 Parts I, II, and III incorporated.

(5) F-14A with AFC-621.

(6) F-14B with modified APC gains.

(7) F/A-18A/B/C/D with 8.33 PROM and 87X mission computer software.

(8) F/A-18A/B with 8.33 PROM and 89A mission computer software.

(9) F/A-18C/D with 10.1 PROM and 87X or 89C mission computer software.

(10) TA-7C (ashore only) with TF-41 engine.

b. Mode IA. All aircraft listed in paragraph 1a of this enclosure with the following additions and/or modifications:

(1) EA-6B (Interim Capability (ICAP) or ICAP2) with CP-1404/ASN-54(V) Automatic Power Control System (APCS) (AVC-2268, AFC-369, AFC-437, and AFC-449).

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(2) A-6E with AFC-161 and AFC-230. CP-1133/ASN-54(V) or CP-878/ASN-54(V) APCS required. ID-1791A/A VGI with electrical erection is not required.

(3) KA-6D with AFC-136, AFC-161, and AFC-230. CP-1133/ASN-54(V) or CP-878/ASN-54(V) APCS required. ID-1791A/A VGI with electrical erection is not required.

(5) TA-7C with TF-41 engine.

(6) TA-7C (ashore only) with TF-30 engine.

(7) S-3A in normal fleet configuration.

c. Mode II. All aircraft listed in paragraphs 1a and 1b of this enclosure with the following additions and/or modifications:

(1) A-6A/B/C/E and KA-6D with AFC-230. (AS-3017/APN Horizontally Polarized Radar Beacon Antenna is not required.)

(2) EA-6A with AFC-230.

(3) EA-6B with AFC-230 or AFC-369.

(4) E-2B/C with ECP-E-2C-060E.

(5) T/EA-3B with AFC-467 Part 3 using the "F-14" button on the PALS controller's console.

(6) F-14A/B/D.

(7) C-2A (reprocured).

(8) F/A-18 with 10.1 PROM and 91C mission computer software.

d. Mode III. All aircraft listed in paragraphs 1a, 1b, 1c of this enclosure, and all aircraft that are otherwise qualified for instrument approaches.

e. Independent Landing Monitor (ILM)/Instrument Carrier Landing System (ICLS). Aircraft equipped with AN/ARA-63 receiver/decoder equipment as follows:

(1) A-6E 159895 and subsequent, A-6E Mod M121 and subsequent, and A-6/KA-6 airplanes with AFC-161 incorporated.

(2) EA-6B with AFC-241.

Encl (1)

PRECISION APPROACH AND LANDING SYSTEM
CERTIFICATION AND VERIFICATION EVENTS

1. Certification and/or verification requested by the TYCOM to NAVAIRWARCENACDIV Patuxent River with information copy to PMA213 and AIR-551. (Schedule of certification and verification to be submitted by 15 April prior to start of fiscal year in which they will occur).
2. Support requirements message (NAVAIRWARCENACDIV Patuxent River and NAVELEXACT) to ship or shore stations.
3. Certification and verification planning meeting (TYCOM, ship or shore station, NAVELEXACT, and NAVAIRWARCENACDIV Patuxent River) 6 weeks prior to scheduled start date.
4. Pre-certification and verification inspection (NAVELEXACT).
5. Modification installations (NAVELEXACT).
6. SINS and FLOLS certified prior to Category I tests (TYCOM).
7. Category I tests (NAVELEXACT).
8. Category IIA tests (NAVELEXACT).
9. Mode III certification and/or verification (NAVELEXACT).
10. Notification that PALS is ready for Category IIB and III tests (NAVELEXACT to NAVAIRHQ and NAVAIRWARCENACDIV Patuxent River).
11. Category IIB tests (NAVAIRWARCENACDIV Patuxent River and NAVELEXACT).
12. Electrical verification of PALS for Category III tests (NAVELEXACT).
13. Category III tests (NAVAIRWARCENACDIV Patuxent River and NAVELEXACT).
14. Mode II, PALS ILM, and ICLS certification and/or verification (NAVAIRWARCENACDIV Patuxent River).
15. Mode IA certification and/or verification (NAVAIRWARCENACDIV Patuxent River).
16. Interim Mode I Certification and/or verification (NAVAIRWARCENACDIV Patuxent River).

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17. Certification and/or verification report and outstanding discrepancies (NAVELEXACT).

18. Certified computer program patch tapes forwarded (NAVELEXACT to carrier or shore station).

19. Category I electrical patch tapes forwarded (NAVELEXACT to carrier or shore station).

20. Final electrical test results (NAVELEXACT to NAVAIRHQ (AIR-551 and PMA213) and NAVAIRWARCENACDIV Patuxent River 60 days after completion of Category III tests).

21. Final certification and/or verification results and final PALS clearances (NAVAIRWARCENACDIV Patuxent River 150 days after completion of Category III tests for certifications; 90 days for verifications).

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PRECISION APPROACH AND LANDING SYSTEM
CERTIFICATION AND VERIFICATION REPORTS DISTRIBUTION LIST

NOTATION

- * For carriers only.
- ** For AIRLANT carriers or shore stations only.
- *** For AIRPAC carriers or shore stations only.
- **** For new construction or service life extension program carriers. //N13800//CNO FOR NOP-554G, NAVAIRHQ FOR PMA213, AIR-551, AIR-5004, NESEA FOR 2120

REQUIREMENTS MESSAGE

FM: NAVAIRWARCENACDIV PATUXENT RIVER MD

TO: USS XXX/NASXXX
** COMNAVAIRLANT NORFOLK VA
*** COMNAVAIRPAC SAN DIEGO CA

INFO:*** COMNAVAIRLANT NORFOLK VA
** COMNAVAIRPAC SAN DIEGO CA

COMNAVAIRSYSCOM WASHINGTON DC
COMSPAWARESYSCOM WASHINGTON DC
NAVELEXACT ST INIGOE MD
CNO WASHINGTON DC
* COMCARGRU XXX
* COMCARAIRWING XXX
**** NAVSEASYSYSCOM WASHINGTON DC
OTHERS AS REQUIRED

INTERIM SITUATION REPORT (SITREP)

FM: NAVAIRWARCENACDIV/NAVELEXACT (released from ship/shore station)

TO: NAVAIRWARCENACDIV PATUXENT RIVER MD
NAVELEXACT ST INIGOE MD

INFO: COMNAVAIRSYSCOM WASHINGTON DC
COMSPAWARESYSCOM WASHINGTON DC
** COMNAVAIRLANT NORFOLK VA
*** COMNAVAIRPAC SAN DIEGO CA
**** NAVSEASYSYSCOM WASHINGTON DC
OTHERS AS REQUIRED

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FINAL SITUATION REPORT (SITREP)

FM: NAVAIRWARCENACDIV/NAVELEXACT DET (normally released
from ship/shore station)

TO: NAVAIRWARCENACDIV PATUXENT RIVER MD
NAVELEXACT ST INIGOES MD

INFO: COMNAVAIRSYSCOM WASHINGTON DC
COMSPAWARSYSCOM WASHINGTON DC
** COMNAVAIRLANT NORFOLK VA
*** COMNAVAIRPAC SAN DIEGO
CNO WASHINGTON DC
* COMCARGRU XXX
* COMCARAIRWING XXX
**** NAVSEASYSYSCOM WASHINGTON DC
OTHERS AS REQUIRED

FINAL REPORT

FM: NAVAIRWARCENACDIV PATUXENT RIVER MD

TO: COMNAVAIRSYSCOM WASHINGTON DC
** COMNAVAIRLANT NORFOLK VA
*** COMNAVAIRPAC SAN DIEGO CA

INFO:*** COMNAVAIRLANT NORFOLK VA
** COMNAVAIRPAC SAN DIEGO CA
USS XXX/NAS XXX
COMSPAWARSYSCOM WASHINGTON DC
CNO WASHINGTON DC
NAVELEXACT ST INIGOES MD
* COMCARAIRWING XXX
** COMSTRKEFIGHTWINGSLANT CECIL FIELD FL
** COMFITMATAEWINGSLANT OCEANA VA
*** COMASWWINGPAC SAN DIEGO CA
*** COMFITAEWWINGPAC SAN DIEGO CA
*** COMLATWINGPAC LEMOORE CA
COMMATVAQWINGPAC WHIDBY ISLAND WA
**** NAVSEASYSYSCOM WASHINGTON DC
OTHERS AS REQUIRED

Encl (3)